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EXAMINER

ISMAIL, SHAWKI SAIF

ART UNIT

PAPER NUMBER

2155

MAIL DATE

DELIVERY MODE

09/14/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary

Application No.

09/934,884

Applicant(s)

REN, WENGGE

Examiner

Shawki S. Ismail

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 19 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

RESPONSE TO AMENDMENT

1. This communication is responsive to the amendment received on June 19, 2007.
Claims 1, 11, 12, 19, 37, 38 and 45-50 have been amended.
Claims 1-51 are pending further examination.

The Previous rejection maintained

2. The rejection is respectfully maintained as set forth in the last Office Action mailed on March 22, 2007. Applicants' arguments with respect to claims 1-51 have been fully considered but they are not deemed to be persuasive and the previous rejection is maintained.

Claim Rejections - 35 USC § 112

3. Applicants' amendment and/or arguments have overcome the 112 rejection, therefore the rejection is hereby withdrawn.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claim 1-6, 9-14, 16-23, 25-40, and 42-44, are rejected under 35 U.S.C. 103(a) as being unpatentable over **Baskey et al.**, (Baskey) U.S. Patent No. **6,148,410** and in view of **Jones et al.**, (Jones) U.S. Patent No. **6,983,294**.

6. As to claim 1, Baskey teaches a protocol redundancy method comprising:

providing a router having an active processor (col. 1, Line 66 – col. 2, line 7);
coupling a standby processor to said active processor (col. 1, Line 66 – col. 2, line 7);

forwarding network protocol information from said active processor to said standby processor for synchronizing link configuration and protocol states of said active processor at said standby processor upon coupling of said standby processor to said standby processor by maintaining a synchronization state machine for each task within a protocol (col. 3, lines 32-48); and

switching said router to said standby processor when a failure is detected at said active processor (col. 1, Line 66 – col. 2, line 7);

wherein all states of said protocol immediately function as if the failure had not occurred (col. 1, Line 66 – col. 2, line 7).

Baskey does not explicitly teach wherein a hidden interface is created on both the active processor and the standby processor for each area during initial synchronizations, each area being a group of contiguous networks and attached hosts, the hidden interface being unexposed. and at least one hidden adjacency being automatically built over the hidden interface for each area and being used to synchronize databases on both the active processor and the standby processor.

Jones teaches wherein synchronicity is achieved by use of a point to point communication channels to ensure that the system information is accessible by the redundant component. The redundancy managers 30 and 32 are responsible for synchronizing the two control cards.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the teaching of Jones into the invention of Baskey in order to make the system faster. The synchronization of the link state database information is handled faster so that the responsibilities of active and inactive control cards are switched almost instantly.

7. As to claim 2, Baskey teaches the invention as described above. Baskey does not explicitly teach wherein the protocol is an Open Shortest Path First (OSPF) protocol. Jones teaches a redundancy system and method of managing requests in a control plane of a communication node, which includes a first control card and a second control card, wherein the control cards are OSPF modules in a router. The redundancy system and method defines one of the control card to be in the active state and the other to be in the inactive state and maintaining synchronicity of information stored on the control card so that if a failure occurs the states of the control cards can be switch and normal processing operations would not be interrupted (abstract, col. 3, lines 17-40).

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the teaching of Jones into the teaching of Baskey in order to make the network stable. The advantage of shortest path first algorithms is that they result in smaller more frequent updates everywhere. They converge quickly, thus

preventing such problems as routing loops and Count-to-Infinity (when routers continuously increment the hop count to a particular network) which makes for a stable network.

8. As to claim 3, Baskey teaches the method of claim 2, wherein said link protocol information is link-state database information, OSPF configuration information, OSPF adjacencies information, OSPF interface information and OSPF global protocol information (col. 2, line 64 – col. 3, line 6).

9. As to claim 4, Baskey teaches the method of claim 2, further comprising processing identical OSPF packets after synchronizing said link configuration and link protocol states between said active processor and said standby processor (col. 5, lines 53-57).

10. As to claim 6, Baskey teaches the method of claim 5, further comprising forwarding said OSPF configuration information, OSPF adjacencies information, OSPF interface information and OSPF global protocol information using said hidden OSPF interface of said active processor and said hidden OSPF interface of said standby processor (col. 4, lines 54-67).

11. As to claim 9, Baskey teaches the method of claim 1, further comprising:

updating network link protocol information at said active processor (col. 4, lines 54-57); and

forwarding said updated network link protocol information to said standby processor (col. 4, lines 54-57).

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12. As to claim 10, Baskey teaches the method of claim 4, wherein said forwarding is a process based on a Database Exchange Process of the OSPF protocol (col. 4, lines 54-57).

13. As to claim 14, Baskey teaches the method of claim 13, wherein said OSPF protocol information is OSPF configuration information, OSPF adjacencies information, OSPF interface information and OSPF global protocol information (col. 2, line 64 – col. 3, line 6).

14. As to claim 16, Baskey teaches the method of claim 13, further comprising:
updating network link protocol information at said active processor means (col. 4, lines 54-57); and

forwarding said updated network link protocol information to said standby processor means (col. 4, lines 54-57).

15. As to claim 17, Baskey teaches the method of claim 13, wherein said synchronizing is a process based on a Database Exchange Process of the OSPF protocol (col. 4, lines 54-57).

16. As to claim 18, Baskey teaches the method of claim 13, further comprising processing identical OSPF packets after synchronizing said link configuration and link protocol states between said active processor and said standby processor (col. 5, lines 53-57).

17. As to claim 21, Baskey teaches the system of claim 19, wherein said link protocol information is link-state database information, OSPF configuration information, OSPF

adjacencies information, OSPF interface information and OSPF global protocol information (col. 2, line 64 – col. 3, line 6).

18. As to claim 22, Baskey teaches the system of claim 21, wherein said unit for forwarding link protocol information comprises:

- a unit for creating a hidden OSPF interface on for each area of said active processor (col. 4, lines 54-67);

- a unit for creating a hidden OSPF interface for each area of said standby processor (col. 4, lines 54-67); and

- a unit for forwarding said link-state database information from said hidden OSPF interface of said active processor to said hidden OSPF interface of said standby processor until said link state database of said standby processor is synchronized with said link state database of said active processor (col. 4, lines 54-67).

19. As to claim 23, Baskey teaches the system of claim 22, wherein said unit for forwarding link protocol information comprises forwarding said OSPF configuration information, said OSPF adjacencies information, said OSPF interface information and said OSPF global protocol information using said hidden OSPF interface of said active processor and said hidden OSPF interface of said standby processor (col. 4, lines 54-67).

20. As to claim 25, Baskey teaches the system of claim 19, further comprising:

- a unit for updating network link protocol information at said active processor (col. 4, lines 54-67); and

a unit for forwarding said updated network link protocol information to said standby processor (col. 4, lines 54-67).

As to claim 26, Baskey teaches the system of claim 19, wherein said network link protocol information is forwarded through said redundant card manager (col. 3, lines 44-48).

21. As to claim 27, Baskey teaches the system of claim 19, further comprising a task manager for determining said link protocol states of said tasks and forwarding said link protocol states to said redundant card manager (col. 3, lines 49-60).

22. As to claim 28, Baskey teaches the system of claim 19, wherein said unit for switching said router to said standby processor comprises a software redundancy manager which interacts with said redundant card manager to indicate switch over from said active processor to said standby processor (col. 3, lines 49-60).

23. As to claim 29, Baskey teaches the system of claim 19, wherein said state of said tasks enters an OSPF_FAULT_INIT state which is an initial state before coupling of standby processor to said active processor (col. 9, lines 34-41).

24. As to claim 30, Baskey teaches the system of claim 19, wherein said state of said tasks enters an OSPF_FAULT_VERIFY state which is entered during synchronization of said link configuration of said active processor and said standby processor (col. 9, lines 34-41).

25. As to claim 31, Baskey teaches the system of claim 19, wherein said state of said tasks enters an OSPF_FAULT_SYNC state during forwarding of said link protocol information from said active processor to said standby processor, said link protocol

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information comprising link-state database information, OSPF configuration information, OSPF adjacencies information, OSPF interface information and OSPF global protocol information (col. 9, lines 52-59).

26. As to claim 32, Baskey teaches the system of claim 19, wherein said state of said tasks enters an OSPF_FAULT_FULL state after said forwarding network link protocol information, said OSPF_FAULT_FULL state is a hot standby state wherein said standby state can immediately take over all operations of said standby processor (col. 9, lines 52-59).

27. As to claim 35, Baskey teaches the system of claim 19, wherein said means for forwarding is a process based on a Database Exchange Process of the OSPF protocol (col. 4, lines 54-57).

28. As to claim 36, Baskey teaches the system of claim 19, further comprising: a unit for processing identical OSPF packets after synchronizing said link configuration and link protocol states between said active processor and said standby processor (col. 5, lines 53-57).

29. As to claim 40, Baskey teaches the system of claim 39, wherein said OSPF protocol information is OSPF configuration information, OSPF adjacencies information, OSPF interface information and OSPF global protocol information (col. 2, line 64 – col. 3, line 6).

30. As to claim 42, Baskey teaches the system of claim 39, further comprising:
a unit for updating network link protocol information at said active processor means (col. 4, lines 54-67); and

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a unit for forwarding said updated network link protocol information to said standby processor means (col. 4, lines 54-67).

31. As to claim 43, Baskey teaches the system of claim 39, wherein said forwarding is a process based in a Database Exchange Process of the OSPF protocol (col. 4, lines 54-57).

32. As to claim 44, Baskey teaches the system of claim 39, further comprising:

a unit for processing identical OSPF packets after synchronizing said link configuration and link protocol states between said active processor and said standby processor (col. 5, lines 53-57).

33. As to claims 5, 11, 12, 13, 19, 20, 22, 33-34, 37, 38, 39 and 45-51 they do not further teach or define any new limitation above the rejected claims above; therefore, they are rejected for similar reasons.

34. Claims 7, 8, 15, 24, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Baskey et al.**, (Baskey) U.S. Patent No. **6,148,410** and in view of **Jones et al.**, (Jones) U.S. Patent No. **6,983,294**.and further in view of “**Official Notice**” as evident by the Microsoft Computer Dictionary (Fifth Edition).

35. As to claim 7, Baskey teaches the method of the claimed invention as shown above. Baskey does not explicitly disclose wherein said link protocol information is in the form of Inter Process Control (IPC) messages.

Official Notice is taken that both the concept and advantages of Inter Process Control (IPC) are well known and expected in the art. It would have been obvious to one of ordinary skill in the art at the times of the applicant's invention to use link protocol

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information in the form of Inter Process Control (IPC) messages because (IPC) enables one application to control another application, and for several applications to share the same data without interfering with one another.

36. As to claims 8, 15, 24, and 41, Baskey teaches the method of the claimed invention as shown above. Baskey does not explicitly disclose wherein said configuration information is determined from Command Line Interface (CLI) commands stored in a datastore.

Official Notice is taken that both the concept and advantages of Command Line Interface (CLI) are well known and expected in the art. It would have been obvious to one of ordinary skill in the art at the times of the applicant's invention to incorporate the use of Command Line Interface (CLI) into the invention of Baskey in order to make the system more flexible. Command based systems are usually programmable; this gives them flexibility unavailable in graphics-based system that does not have a programming interface.

37. Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in its entirety as potentially teaching of all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

Response to Arguments

38. Applicants' arguments with respect to claims 1-51 have been fully considered but they are not deemed to be persuasive. Applicant arguments are similar to the previous arguments made in prior action. Applicant argues that:

(A) Argument: Baskey in view of Jones does not teach at least one hidden adjacency being automatically built over the hidden interface and being used to synchronize databases on both the active processor and the standby processor.

Response: As already indicated in the previous action, Baskey in view of Jones teaches wherein synchronicity is achieved by use of a point-to-point communication channels to ensure that the system information is accessible by the redundant component. The redundancy managers 30 and 32 are responsible for synchronizing the two control cards. The redundancy managers are not accessible by any outside component i.e. client. Therefore, it is completely hidden and unexposed as well as its numerous components. One such hidden component is the adjacency that is used to synchronization the databases. Jones teaches the synchronization of the databases parallel with the instant application and therefore meets the scope of the claimed limitation as currently presented.

Examiner Note:

Examiner believes that a discussion with applicants' representative might expedite prosecution on this case. The examiner encourages applicant's representative to contact the examiner and discuss the issues on this case.

39. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawki S Ismail whose telephone number is 571-272-3985. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached at 571-272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shawki Ismail
Patent Examiner
September 13, 2007



SALEH NAJJAR
SUPERVISORY PATENT EXAMINER